

## WHAT IS CLAIMED IS:

1. A method for coding live images in microscopy, comprising the following steps:
  - a) recording a first complete image (25<sub>1</sub>) that depicts a portion of a microscopic preparation (14a);
  - b) generating a first coded complete image (200) in a coding element (21);
  - c) storing the first coded complete image in a buffer memory (27);
  - d) outputting the first coded complete image (25<sub>1</sub>);
  - e) recording a second complete image (25<sub>2</sub>) that is offset with respect to the preceding complete image in a plane defined by an X-Y stage (12);
  - f) transferring the coordinates of the portion of the second complete image (25<sub>2</sub>), and further control data, to a control data decoder (30);
  - g) generating at least one coded partial image utilizing the data from the control data decoder (30);
  - h) generating an assembled and coded complete image (210) in an image assembler (32), using the at least one coded partial image (220) and the preceding coded complete image located in the buffer memory (27);
  - i) outputting a second assembled and coded complete image (210), the assembled and coded complete image (210) also being additionally stored in the buffer memory (27); and
  - j) recording further images, steps f) through i) being repeated for each further image.
2. The method as defined in Claim 1, characterized in that a coded partial image (220) is output at a second output (222) of the coder (21).

3. The method as defined in Claim 1, characterized in that the coder (21) makes available three output forms -- a) complete images, completely coded; b) complete images assembled from coded partial images; and c) partial images -- for output of the coded images; and that the image information additionally contains information as to coding and the location of the image in the overall image.
4. The method as defined in Claim 3, characterized in that the images recorded are always complete images.
5. The method as defined in Claim 1, characterized in that coded complete images (200, 210) are transmitted to a remote station, a decoded complete image being generated at the remote station.
6. The method as defined in Claim 5, characterized in that at least one coded partial image is transmitted to the remote station, an assembled decoded complete image being generated at the remote station.
7. An arrangement for coding live images in microscopy, comprising a coder (21) to which complete images (25<sub>1</sub>) can be transferred, the coder (21) comprising a coding unit (26) that is connected to a buffer memory (27); a control data decoder (30) being connected to the coding unit (26), to the buffer memory (27), and to an image assembler (32); and the image assembler (32) receiving data from the buffer memory (27) and transferring data to the buffer memory (27).
8. The arrangement as defined in Claim 7, characterized in that coded complete images and coded partial images can be output from the buffer memory (27); and that assembled and coded complete images (210) can be output from the image assembler (32).

9. The arrangement as defined in Claim 8, characterized in that the data of an assembled and coded complete image (210) can additionally be stored for output in the buffer memory (27).

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10. The arrangement as defined in Claim 7, characterized in that a decoder (40) that is arranged in physically separate fashion from the coder (21) is provided; and that the decoder (40) receives coded partial images (220) and coded complete images (200), and generates decoded complete images (45<sub>1</sub>) and assembled and decoded complete images (45<sub>2</sub>) therefrom.

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11. The arrangement as defined in Claim 10, characterized in that the decoder (40) comprises a control data decoder (42) that ascertains the corresponding position data and/or control data from the coded complete image (200) or partial image (220) that is received, a decoder unit (44), an image assembler (48), and a decoder buffer memory (46).

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